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V. *Account of a Musical Instrument, which was brought by Captain Fourneaux from the Isle of Amsterdam in the South Seas to London in the Year 1774, and given to the Royal Society. By Joshua Steele, Esquire, in a Letter to Sir John Pringle, Bart. P. R. S.*

TO SIR JOHN PRINGLE, BART. P. R. S.

SIR,

Margaret-Street, Cavendish-square,
December 6, 1774.

Redde, Jan. 22,
1775.

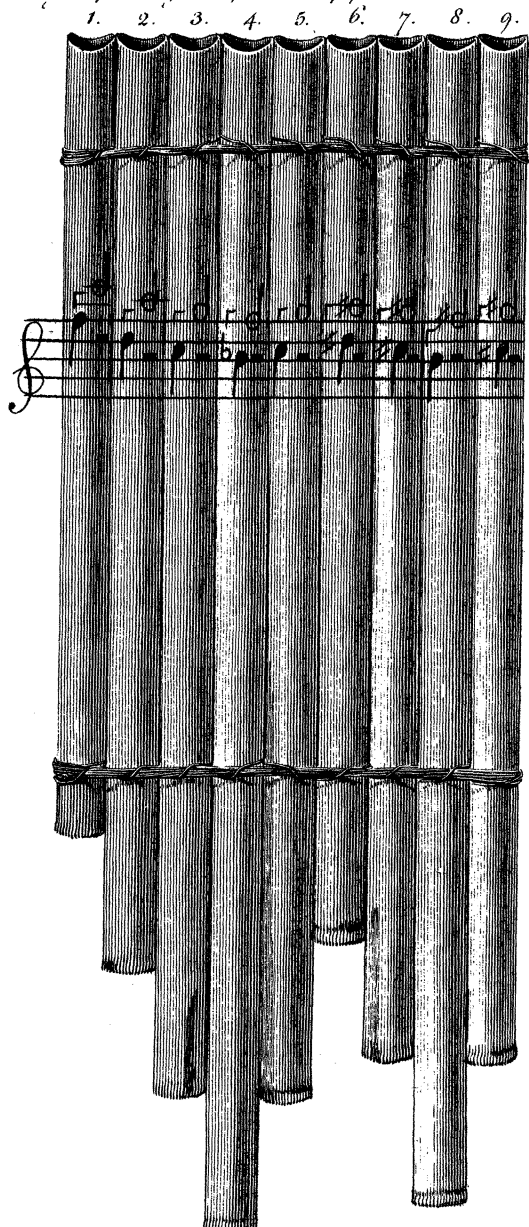
A GREEABLE to your request, I have examined the curious system of pipes, brought by Captain Fourneaux from the South Seas. The result of my experiments are herewith inclosed. The instrument was so new to me, that I should be sorry its reputation should rest intirely on my report, as I think an expert blower of the German flute might make further discoveries; towards which, my observations, whether perfectly accurate or not, may in some measure serve as a guide. The accident of a flat third, coming in the stead of a sharp one, from the pipes 6. 7. 8. and 9. is so extraordinary, that I suspected, for some time, the lowest (or fundamental) tones of those pipes were a quarter tone (or *diesis*) lower than I have marked them; but, after repeated trials, and by the best judgement I could form by my ear, and by comparison with another instrument, I gave

up that suspicion;
and being confirmed in the opinion, that the most acute tones I could obtain from those four pipes, were *minor thirds* to the most grave, I have ventured to mark them so. The reason why there was room for my doubt above mentioned is, because the difference of hotter or colder, moister or dryer, has a sensible effect on the acuteness or gravity of the tones.

I am, SIR, with
great regard,
Your most humble servant,

JOSHUA STEELE.

Figure of the System of Musical pipes, accord'd to their exact size.



Explanation of the system of musical pipes, brought from the Isle of Amsterdam in the South Sea, by Captain Fourneau, to London, *anno* 1774, from experiments made by Mr. STEELE.

The manner of blowing these pipes, in making these experiments, was the same as people use to whistle in the pipe hole of a drawer key. Of the tones, marked on the drawing, the upper series, which are exact fifths to the lower, are easiest produced by an unexperienced person; and the lower series, which we will call fundamentals, with somewhat more address and a weaker blast. Beside the above mentioned tones, if the velocity of the breath be increased a little, the five first pipes will give octaves to the fundamentals; and if farther increased, sharp thirds, or tierces, above these octaves. In the pipes 6. 7. 8. and 9. I could neither make the octaves to the fundamentals, nor the sharp tierces; but in their stead, the minor, or flat-third, above the octave came, when the breath was urged beyond the degree requisite to produce the fifth. This minor third is an accident out of the natural order of tones produced from simple tubes, which I do not pretend to account for. Here following, are set down the notes of the several tones which I produced from each pipe; but, in order to bring them more within compass of the scale of five lines, they are written an octave lower than they

really are on the pipes. And also those tones which come with most ease are wrote in minims, as

those in the next degree, in crotchets, as

those still more difficult, in quavers, as

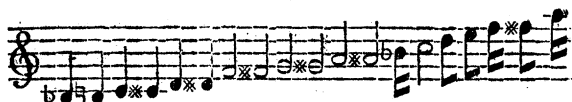
and the most difficult in femiquavers, as



1st pipe		2d pipe	
3d and 5th pipes unisons		4th pipe	
6th pipe		7th and 9th pipes unisons	
8th pipe			


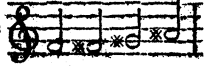
These tones are adapted to English *consort pitch*, by the above notes. From whence it is evident, that an expert performer may exhibit the following series, and perhaps also the octave to the fundamental ; *vi-*

delicet, , though I could not, which series is sufficient for an infinite number of airs:



In this series the notes marked in minims, being those which are easiest to be sounded, furnish two systems which correspond with the definitions of the diatonic


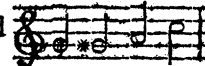
and chromatic *genera*, according to Euclid, who describes the diatonic in descending, κατὰ τόνον, καὶ τόνον, καὶ ἡμιτόνιον; and in ascending, καθ' ἡμιτόνιον, καὶ τόνον καὶ τόνον.

as  descending, and  ascending.

Interval of
a tone,
and a tone,
and
a semitone.

Interval of
a semitone,
and a tone,
and a tone.

And the chromatic thus, κατὰ τριημιτόνιον, καὶ ἡμιτόνιον, καὶ ἡμιτόνιον, in descending; and ascending, καθ' ἡμιτόνιον, καὶ ἡμιτόνιον, καὶ τριημιτόνιον.

as  descending, and  ascending.

Interval of
3 semitones,
and 1 semitone,
and 1 semitone.

Interval of
1 semitone,
and 1 semitone,
and 3 semitones.

But as the enharmonic *genus* requires intervals of the *diēsis*, or quarter tone, and as it did not appear by these experiments, that the pipes could exhibit any sounds by such intervals, I conclude they are not capable of performing according to the enharmonic division of the tetrachord.